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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,983	08/07/2001	Luo Steven	P01018US1A	3562

7590 04/15/2002
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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 04/15/2002

3

Please find below and/or attached an Office communication concerning this application or proceeding.

T-D-3

Office Action Summary

Application No. 09/923,983		Applicant(s) STEVEN ET AL.	
Examiner Rip A. Lee		Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-5, drawn to a stabilized high vinyl polybutadiene, classified in class 524, subclass 248.
 - II. Claims 6-11, drawn to a method of stabilizing high vinyl polybutadiene, classified in class 524, subclass 248.
 - III. Claims 12-20, drawn to a method of preparing a vulcanizable component, classified in class 525, subclass 236.
2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, a stabilized high vinyl polybutadiene can be prepared by a materially different process such as compounding. In addition, said high vinyl polybutadiene can be stabilized with materials other than those claimed.
3. Inventions III and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant

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case, the combination as claimed does not require the particulars of the subcombination as claimed because a method for preparing a vulcanizable component need not include a method for stabilizing a high vinyl polybutadiene in order to be successful. The subcombination has separate utility; that is, the method can viably be used to prepare a vulcanizable component as well.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group III, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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8. During a telephone conversation with Mr. Arthur M. Reginelli on April 4, 2002, a provisional election was made with traverse to prosecute the invention of group I, claims 1-5. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-20 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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Claim Objections

10. Claim 4 is objected to because of the following informalities: On line 21, "dibutylaminomethyl" should be changed to "di-*n*-butylaminomethyl" or "di-*i*-butylaminomethyl," whichever is appropriate.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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13. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,501,867 to Ueno *et al.* in view of U.S. Patent No. 5,298,562 to Ceska *et al.*

Ueno *et al.* discloses polybutadiene materials consisting essentially of syndiotactic 1,2-polybutadiene (col. 6, line 3). To the raw polymer is added a hindered phenol stabilizer such as 2,6-di-*t*-butyl-4-methyl phenol (col. 7, lines 11-14). The reference does not teach the use of antioxidant recited in the present claims.

The prior art of Ceska *et al.* discloses the use of a series of 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenol compounds as scorch retardants for cured elastomers (col. 8, lines 3-64). An added benefit is that these compounds also confer antioxidant properties. One with skill in the art readily appreciates the structural and functional similarities between the compounds of Ceska *et al.* with standard hindered phenol stabilizers (such as 2,6-di-*t*-butyl-4-methyl phenol, *supra*). One with skill in the art also recognizes the need for stabilizing 1,2-polybutadienes. With respect to claim 1, one having ordinary skill in the art would have found it obvious to use 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenols in lieu of 2,6-di-*t*-butyl-4-methyl phenol in the polybutadienes of Ueno *et al.* with the expectation that use of a functionally equivalent material would stabilize the polymer as well. Also, one would have expected all species of hindered phenols to be effective stabilizers.

With respect to the remaining claims, Ceska *et al.* indicates that the reagent of choice is 2,6-di-*t*-butyl-4-(dimethylaminomethyl) phenol (col. 8, line 39) used in the amount of 0.01-5 parts per 100 parts of elastomer (col. 8, line 62 and claim 23). Thus, it would have been obvious to one having ordinary skill in the art to use this reagent in the specified amount because this is adequately disclosed in the prior art.

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14. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,117,956 to Luo in view of Cesk *et al.*

The prior art of Luo discloses methods for making syndiotactic 1,2-polybutadiene. An antioxidant such as 2,6-di-*t*-butyl-4-methyl phenol is added to the polymer in an amount of 0.2-1 % by weight (col. 5, line 63-67). The reference does not teach the use of antioxidant recited in the present claims.

The prior art of Ceska *et al.* discloses the use of a series of 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenol compounds as scorch retardants for cured elastomers (col. 8, lines 3-64). An added benefit is that these compounds also confer antioxidant properties. One with skill in the art readily appreciates the structural and functional similarities between the compounds of Ceska *et al.* with standard hindered phenol stabilizers (such as 2,6-di-*t*-butyl-4-methyl phenol, *supra*). One with skill in the art also recognizes the need for stabilizing 1,2-polybutadienes. With respect to claim 1, one having ordinary skill in the art would have found it obvious to use 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenols in lieu of 2,6-di-*t*-butyl-4-methyl phenol in the polybutadienes of ^{Luo}~~Cesk~~ *et al.* with the expectation that use of a functionally equivalent material would stabilize the polymer as well. Also, one would have expected all species of hindered phenols to be effective stabilizers.

With respect to the remaining claims, Ceska *et al.* indicates that the reagent of choice is 2,6-di-*t*-butyl-4-(dimethylaminomethyl) phenol (col. 8, line 39) used in the amount of 0.01-5 parts per 100 parts of elastomer (col. 8, line 62 and claim 23). Thus, it would have been obvious to one having ordinary skill in the art to use this reagent in the specified amount because this is adequately disclosed in the prior art.

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15. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 57-55950 to Oozeki *et al.* in view of Ceska *et al.*

Oozeki *et al.* discloses a composition comprising 100 parts (by weight) of syndiotactic 1,2-polybutadiene (claim 1), and 0.01-5 parts of a phenolic antioxidant such as 2,6-di-*t*-butyl-*p*-cresol (col. 4, line 36 – col. 5, line 2). The reference does not disclose the use of antioxidants recited in the present claims.

The prior art of Ceska *et al.* discloses the use of a series of 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenol compounds as scorch retardants for cured elastomers (col. 8, lines 3-64). An added benefit is that these compounds also confer antioxidant properties. One with skill in the art readily appreciates the structural and functional similarities between the compounds of Ceska *et al.* with standard hindered phenol stabilizers (such as 2,6-di-*t*-butyl-4-methyl phenol, *supra*). A reagent of choice is 2,6-di-*t*-butyl-4-(dimethylaminomethyl) phenol (col. 8, line 39).

Thus, one having ordinary skill in the art would have found it obvious to use 2,6-di-*t*-butyl-4-(dialkylaminomethyl) phenols, and in particular, 2,6-di-*t*-butyl-4-(dimethylaminomethyl) phenol, in lieu of the conventional additive in the polybutadienes of Ueno *et al.* in order to confer stabilizing and antioxidant properties to the polymer. Because functionally equivalent materials behave the same chemically, one with skill in the art would have expected such a modification to work. *In re O'Farrell*, 7 USPQ 2d 1673 (Fed. Cir. 1988).

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16. The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure. The following patents show the general state of the art with respect to stabilizers and antioxidants.

U.S. Patent No. 4,759,862 to Meier

U.S. Patent No. 5,362,783 to Eiffler *et al.*

U.S. Patent No. 5,169,547 to Farnig *et al.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

April 8, 2002



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